

# Engineering Weekly Report 2/6 - 2/12

## Executive Council Notes

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## Individual Activities

- Francois Cazenave
- Mark Chaffey
- Danelle Cline
- Duane Edgington
  - 901618 - Pelagic-Benthic Coupling
    - Duane is experimenting with Matlab toolboxes (one on trial from Mathworks, another opensource from Caltech) applied to calibrating checkerboard targets underwater.
  - 901915 - Improving MBARI Data Impa
    - Weekly meeting; lunchtime learning session on centralized logging with Elastic Stack.
    - Productive meeting with VideoLab (the whole lab) on requirements and use cases.
  - 902004 - Planktivore
    - Continuing work to build Taxonify backend on windows 10 system. Front end running; work to do on configuration.
  - 902005 - VARS Annotation Assistance
    - Continuing work on integration of MLflow into AWS. Cloud9 and shared environments are cool!
    - Next step, configure a workflow in SageMaker...
- Jon Erickson
  - 300070 - DMO Support- Ventana
    - Reviewed the Vibracore swing arm for Mark T. on the Ricketts
  - 701145 - Penguin Hotspots
    - Waiting on the electronics (filter boards).
  - 800139 - EyeRIS
    - Will Help Paul R. do a pressure test for his new extended camera housing.
  - 901217 - Chemical Sensor Program
    - Finished a rev on the APEX equitech probes to improve the assembly precision. (3 days)
  - 901405 - PowerBuoy Development
    - Waiting on the platers.
  - 902010 - Mesopelagic LRAUV
    - Working on a list of functional requirements.
- Kevin Gomes
  - 901205 - ESP SURF Center
    - Making quite a few changes to the log and out file parsing for the Gulf of Mexico ESP deployment
  - Overhead
    - Hosted brown bag session on ELK stack as possible centralized logging and monitoring system
    - Making changes to ER presentation after getting word from ER committee that we need to short presentations.
    - Helped host cookie break
  - Out of Office

- May 6-7: Vacation
- Andy Hamilton
- Kent Headley
  - 600034 - Control Tech - Rock
    - Cruise 06feb20 was successful; the vehicle made ~8 obstacle avoidance test runs, and terrain-relative nav (TRN) worked well. The changes in TRN we tested were successful in addressing the sawtooth data artifact from November. Still chasing down an anomaly in one dive.
    - Organized TRN log plot scripts into proper command line app
    - Re-organized some of the web-based command line builder tool and added responsive buttons
    - Updated mbtrnpp app to use single session ID so that log files share common name and made some adjustments to TRN log naming and directories
  - 901803 - Carbon Wave Glider Development
    - Working on data processing plan
- Rich Henthorn
  - 600034 - Control Tech - Rock
    - Successful day on the Carson last Thursday. Many new and updated components worked well.
    - Post-mission data analysis
  - 901405 - PowerBuoy Development
    - Fitting-out the new controller CPU with build tools, languages, and software installs.
  - 901618 - Pelagic-Benthic Coupling
    - Migrating Snappy project to version 5 of MPLAB.
  - 901807 - Next Gen Acoustic Dorado
    - Analyzing i2MAP mission failure of Jan 08 and how bottom dredging can be avoided in the future
  - Out of Office
    - Mon Feb 24 - Thu Feb 27: Vacation, VPN access, PST
    - Thu March 26: Vacation, VPN access, PST
- Brett Hobson
- Scott Jensen
- Brent Jones
  - 901800.98 - Bioacoustic Payload
    - Started work on top level wiring diagram in preparation for pressure case delivery.
  - 901805 - Coastal Biogeochemical Sensing
    - Prepped and deployed Spray glider with pH sensor. Standing 24/7 watch as its deployed.
- Chad Kecy
- Brian Kieft
  - Out of Office
    - Feb 1-13 WHOI/Maine under ice, EST
    - Feb 17-21 Ocean Sciences?, PST
    - Mar 2 - 10, Vacation, GMT -7
    - Mar 16-25 Michigan (NMU) under ice, EDT
    - July 18-31 Arctic, ADT
- Denis Klimov
  - 300083 - DMO Support - LRAUV
    - Reviewing requirements for joint WHOI-MBARI battery pack development (with Daniel Gomez-Ibanez and Erik Trauschke)
  - 901114 - E&D-Picophytoeukaryotes
    - Wrapping up low temperature test being run from November, 2019
  - 901800 - LRAUV Payload & Support

- Organizing parts for PAR sensor project
  - 901809 - Deep Sea Bioinspiration
    - Documenting etching procedure for fiber optic penetrators
- Eric Martin
  - 901101 - Ocean Imaging
    - Integrating new rotators and strobes onto the platform, loading on the Flyer for a cruise starting next Wednesday.
  - 901206 - Coastal Profiling Float
    - Waiting on hardware and PCBs to continue final integration.
  - 901405 - PowerBuoy Development
    - New SBC brought up
    - Redrew the Buoy Controller Housing, prepping for re-wiring
    - Finalizing drawing for the Spring Assembly
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  - 901807 - Next Gen Acoustic Dorado
    - At sea this past Mon-Tues, short a few transducers.
  - 901911 - ROVVR
    - Hosting a rep from Looking Glass Factory this Thursday to investigate the holographic display tech.
  - DQ1942 - Buoy Power Generation
    - Amending drawings for new Radar
- Thom Maughan
  - 300083 - DMO Support - LRAUV
    - Hardware design has 5 uarts with one multiplexed to 4 for a total of 8 uarts. Working on design/layout.
  - 901009 - CANON
    - Itemizing software packages in the eDNA to speciesID workflow to see what is open source and readily available, what is distributed binary for ARM, what has GPU acceleration, etc.
    - Ordered eDNA minion ligation kit
  - 901805 - Coastal Biogeochemical Sensing
    - In progress adding bias battery measurement. It's coded, needs testing.
    - Working on DeepSeaDurafet, aka, nanoFET design. Looking deeper at software porting and pin muxing.
  - 902000 - Multi-Spectral StealthCam
    - Working with Bridget Benson on four channel PWM using TCC module - she got it working and verified pin assignments
    - Updated the PWM pin assignments on the StealthCam layout (thanks Jose) for atsamd21g18a
  - 901713 - Nearshore FOCE
    - Updated the protocol and simulated data format per Dales feedback. Work in progress.
    - Sensors should be in end of Feb.
  - Overhead
    - Trygve Fossum and Tore-Mo Bjorklund from NTNU meeting - discussion on collaboration opportunities, Notably NTNU yearly arctic trip in August. Met with John Ryan, Brett Hobson, Giancarlo Troni.
  - Out of Office
    - Mar 12 - Mar 30 Vacation (St. Helena with Georgia Aquarium)
- Mike McCann
  - 901009 - CANON
    - Binary search for image slices really improves performance – profiling in Chrome now indicates most time is spent in rendering rather than in the dumb JavaScript function I used to have.

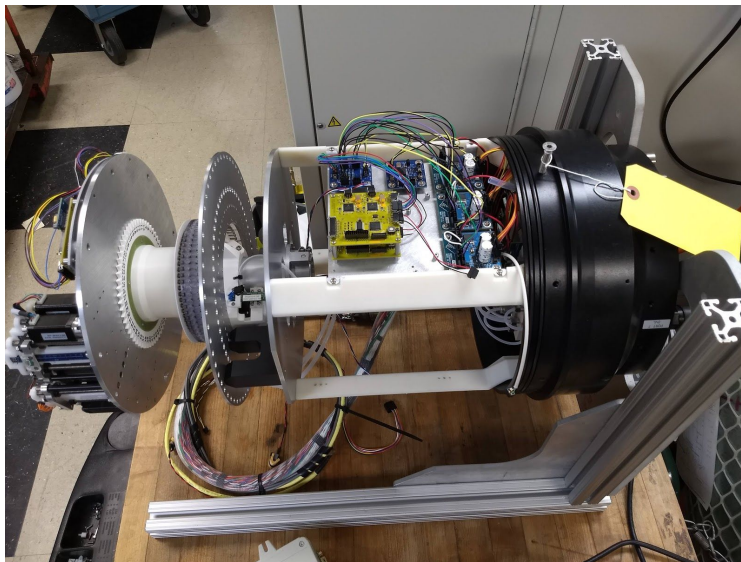
- Continuing to test and squash bugs in the UI for controlling 3D Curtain animations
- 901910 - Plankton Taxonomic GrpAUV
  - Met with Monique and agreed on path to producing “Dataframe” structured data from STOQS
  - Beginning to look at ways to generate these Dataframe “reports”
- Rob McEwen
  - 600034 - Control Tech - Rock
    - Analyzing object avoidance and Trn results from last dive.
  - Overhead
    - Adding a deltaT model to the OI sim.
  - Out of Office
    - 13 Feb - 19 Feb.
- Paul McGill
  - 701145 - Penguin Hotspots
    - Trying to squeeze electronics into a tight space. It’s what we do here.
  - 901221 - Midwater Time Series
    - Working on Ocean Sciences poster with Rob
  - 901618 - Pelagic-Benthic Coupling
    - Wired Larval Sampler pump through pressure test bulkhead and got it spinning in preparation for upcoming pressure tests. Still working on content for Station M 30th anniversary video.
  - 901700 - 2017 Acoustical Ocean Eco
    - Modified new Linear Tech power supply to output 15 V in preparation for noise testing on Simrad sonar.
  - 901904.99 - Coral Camera System
    - Did some cable testing with Alana.
  - Overhead
    - Spent many, many hours on NSF proposal to refurbish MARS extension cable and broadband seismometer. Got UPS working again on neural net development machine deepdark. Helped Gene with his CPF talk for Ocean Sciences.
  - Out of Office
    - Will be at Ocean Sciences 16Feb to 21Feb.
- Ed Mellinger
- Tom O’Reilly
  - 300082 - DMO Support - Wave Glider
    - Assisted Wahl in data log retrieval from deployed Hot Spot Wave Glider
  - 901800 - LRAUV Payload & Support
    - Completed preliminary performance tests of LCM-Slate onboard middleware
  - 901902 - Aerial Drones for Sci&MO
    - Working to set up ADS-B receiver at MBARI; our UAVs will carry an ADS-B transponder that periodically broadcasts vehicle location, speed, altitude, heading - like an aerial version of AIS. Procured receiver and antenna, preparing Raspberry PI host for the receiver.
    - Evaluating tools and developing workflow to generate drone mission plans, taking factors such as solar illumination and wind into account.
    - Helping team to document checklists, “rules of the road” for UAVs at MBARI
    - Preparing material for UAV software review to be held later in the spring
- Craig Okuda
  - 901007 - Benthic Biology & Ecology
    - BRS chamber valve redesign
  - 901220 - Midwater Ecology
    - ADCP mount frame
- Doug Pargett

- 901205 - ESP SURF Center

- Built the G3 instruments MV-2 and MV-3 as far as is reasonable until we can do some system testing.
- Scott Jensen looked over MV-2. On start-up, it seems to be mostly ok, but running 2 year old software and firmware. MV-2 woke up from a 2-year nap and now has left and right mixed up.



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- MV-3 is about 90% built. Some long lead parts are coming in April. It got a yellow card from the referee and will be sitting on the bench for a bit.



- - Continued major clean-up of the Tech Lab with Dack.
- 901800.98 - Bioacoustic Payload
    - Built up the first gimbal transducer assembly, and it.... Rocks!



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- Ben Raanan
- Mike Risi
  - 901101 - Ocean Imaging
    - Met with Dave to go over anticipated patch tests for next weeks cruise. Testing patterns against simulator.
    - Tested new strobe rotators with Moxa RS-485 interface. Modified the ROS positioner class slightly to take advantage of new ramping velocity commands in current model of rotator. Rotators are now mounted on the sled and ready to go.
    - Misc. help with Ocean Imaging MOB.
  - 901809 - Deep Sea Bioinspiration
    - Finished process to publish VARS annotations to LCM log and tested against the MiniROV VARS system.
  - Out of Office
    - February 19-22: Ocean Imaging Cruise
    - March 9-12: Vacation
    - September 18-29: Ocean Imaging Cruise
    - September 30 - October 2: Vacation
- Brent Roman
  - 901205 - ESP SURF Center
    - Worked with Scott and Chris Preston to plan 3G heater tests
    - Helped Bill Ussler get ESPbruce working (fixed carousel binding issue)
    - Found and fixed faulty I2C cable that had been plaguing ESPgordon for months!
    - Identified binding in ESPwaldo's gripper mechanism (another months old problem)
    - Wrote up procedure for replacing RTC batteries, as requested by ESP users in Denmark.
  - DQ1865 - Bryde Whale

- Worked with Scott Jensen and Jim Birch to prepare ESPmoe for shipment Louisiana
- Carlos Rueda
  - 901009 - CANON
    - MXM development especially regarding interaction and data synchronization with external providers. Looking into somehow enabling Typescript as the lack of types is becoming painful.
  - 901502 - Passive Acoustic Sensing
    - Group meeting. Some paper reading.
  - 901800 - LRAUV Payload & Support
    - TethysDash: For Argos email handling, per Brian's request, now target vehicle can be determined based solely on the platform number when no Argo program is provided in the received email.
    - Dash3: Improved handling of webapp page load when backend server is not available.
  - Overhead
    - More testing in preparation for migration of TethysDash production system to CentOS 7 + Docker. Putting notes about this including a preliminary plan for cutover in this [document](#) (shared with Pat and some LRAUV folks).
  - Out of Office
    - Feb 21, Mar 11-12, Apr 9: vacation
- Karen Salamy
  - 704109 - NavDORISS
    - I have assembled most of the hardware for the NavDORISS system. I ordered a new SSD card which should arrive this week. I will begin testing software on the system beginning tomorrow. I expect the need to update various software on the system including Holograms.
  - Overhead
    - Lonny L. found a bug in the Postcruise web form that would not allow a registered user to add more than one dive at a time. This has now been fixed and I will be updating the main MBARI postcruise web link to point to the new form today or tomorrow.
- Brian Schlining
  - 500055 - Video Annotation DM
    - [Tape annotation/framecapture](#) was restored and [released](#) to the video lab.
    - Worked on standardizing M3/VARS builds for different MBARI deployments.
  - 901221 - Midwater Time Series
    - Investigated anomalies in midwater transect annotation data.
  - 902002 - Fathomnet Detect and Classify
    - Completed integration of [ZeroMQ notifications when a new annotation is created](#) in support of Kakani's research.
    - Deployed updated [M3/VARS software](#) stack for the MiniROV
  - 902005 - VARS Annotation Assistance
    - Working with external contractor on development of a video player that supports annotation localization (e.g. drawing bounding boxes.). Reviewed latest milestone delivery. Wrote additional acceptance tests. Working on UDP protocol for inter-app communication.
  - Overhead
    - Met w/ CSUMB Capstone students to kick off a project.
    - Put together collaborators agreements for CSUMB Capstone students.
  - Out of Office
    - Apr 3 - 13: Vacation
- Rich Schramm
  - 200103 - Core CTD Data -MDUC
    - Minor issue with stuck rovctd plots

- 200105 - Core Nav - MDUC
  - Continue on navproc work
- 300070 - DMO Support- Ventana
  - Assist MikeB with accessing low-level LCM data for Greensea eval
- 701127 - MARS O&M III
  - Discuss/research where MARS NPC sensor calibration settings are stored. MAY need about a day sometime in next few weeks to verify.
- 901915 - Improving MBARI Data Impa
  - Attend Mtg.
- Overhead
  - Weekly Transition Planning with Kevin
- Out of Office
  - Feb 20: Vacation
  - Mar 20: Vacation
  - Mar 23 - 27: XOJO Developers Conference
- Alana Sherman
  - 901904.99 - Coral Camera System
    - Tested extended ODI cable, and works well. Now being potted
    - Tested the rewired tilt motor on the bench and through the camera electronics and that is working reliably
    - Still need to test new cable for tilt motor and waiting for final decision on f-stop, then all housings will be closed up
  - Overhead
    - Working on talk for Ocean Sciences on MiniROV
    - Working on talk for ER